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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,302	08/18/2003	Hiroaki Makino	2635-167	2011
23117	7590	07/14/2005	EXAMINER	
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			PATEL, ASHOK	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/642,302	MAKINO ET AL.	
	Examiner	Art Unit	
	Ashok Patel	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8 is/are allowed.
- 6) ☒ Claim(s) 9-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>8/18/03</u> <i>as</i> | 6) <input type="checkbox"/> Other: ____. |

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1. The information disclosure statement filed 08/18/2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

The two Japanese documents (11-54240 and 11-242983), which are cited on the PTOL-1449, are not submitted. As a result, scope of the two Japanese prior art references and of the instant invention could not be compared.

Applicant is advised that the date of re-submission of any non-considered prior art references in the future will be the date for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 9, 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishida et al (USPN 6,166,480, of record).

Ishida et al disclose applicant's claimed spark plug (Figures 1-15, 17) including: a cylindrical metal housing (2); a columnar center electrode (5) insulated from the metal housing and supported inside the metal housing; a ground electrode (6) having a leg portion (6a) extending substantially parallel to an axis of the center electrode and bonded to the metal housing at one end, and an opposed portion extending from the other end of the leg portion in a direction substantially normal to the axis of the center electrode so as to be opposed to a distal end of the center electrode; and a columnar noble metallic firing tip (12) bonded to at least one of the distal end of the center electrode and the opposed portion of the ground electrode so as to form a discharge gap, wherein the noble metallic firing tip includes a chamfered portion (see Figure 12C) formed partly along an outer cylindrical periphery of a discharge surface and positioned closely to the leg portion of the ground electrode.

As to claim 11, Ishida et al disclose the noble metallic firing tip made of an iridium alloy or a platinum alloy (col. 3, lines 35-57; claim 27 etc.).

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As to claim 12, the claimed shearing process for forming the metallic tip renders the claim of a product-by-process nature. The courts have been holding that: "--In spite of the fact that a product-by-process claim may recite only process limitations, it is the product which is covered by the claim and not the recited process steps.-- In re Hughes, 182 USPQ 106--". Also --Patentability of a claim to a product does not rest merely on a difference in the method by which that product is made. Rather, it is the product itself, which must be new and unobvious. In re Pilkington, 162 USPQ 147--." Accordingly, "--a rejection based on 35 U.S.C. section 102 or alternatively on 35 U.S.C. section 103 of the statute is eminently fair and acceptable." In re Brown and Saffer, 173 USPQ 685 and 688. - -The determination of the patentability of product-by-process claim is based on the product itself rather than on the process by which the product is made--. In re Thrope, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985).

As such, no patentable weight is given to process steps recited in claim 12.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the

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differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida et al, as applied to claim 9.

Ishida et al does not disclose a maximum radius of curvature of the chamfered portion satisfying $0.05 \text{ mm} \leq r_{\text{max}}$, as claimed by applicant. However, it would have been obvious to one of ordinary skill in the art to provide the chamfered portion with a suitably appropriate radius of curvature, since it has been held that where general conditions of the claim are discovered in the prior art, discovering the optimum or workable range involves only routine skill in the art. In re Aller, 105 USPQ 233.

6. Claims 1-8 are in the condition for allowance since prior art of the record does not disclose or teach applicant's claimed spark plug including: a cylindrical metal housing, a columnar center electrode, a ground electrode, a columnar noble metallic firing

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tip, as specifically recited in claim 1 or 5, wherein the noble metallic tip includes: (a) a protruding portion formed partly on the outer circumferential surface of the noble metallic firing tip so as to protrude in the direction substantially normal to the axis of the center electrode, and the protruding portion disposed in confronting relationship via the discharge gap with a distal end of the opposed portion of the ground electrode far from the leg portion; or (b) two regions differentiated in surface roughness and respectively serving as a discharge surface forming the discharge gap, and one region of the noble metallic firing tip includes a surface roughness larger than that of the other region and is disposed in confronting relationship via the discharge gap with a distal end of the opposed portion of the ground electrode far from the leg portion.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Morita et al, Hanashi et al and Chiu et al each are cited for showing a general structure of a spark plug electrode structure.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ashok Patel

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whose telephone number is 571-272-2456. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Ashok Patel
Primary Examiner
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